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Spruces and Firs on the Maine Coast.

AS the traveler passes the boundary of the state of Maine, on his way northward, he is conscious of a change in the silhouette of the forest against the sky. The dome-like outline, the great rounded masses begin to disappear, and in their place arise the serried lances of Spruces and Firs, which, fine as they are in detail, are the despair of the painter from the rigidity of the serrated line which they present. Italian artists, accustomed as they are to swelling slopes, maintain that Switzerland is unpaintable because the forms of the mountains lack grace of curve, and are sternly defiant and hard in outline, and one is conscious of this same artistic defect as he contemplates the Maine landscape, with the sharp tips of its evergreens standing out against the clear distant sky.

The farther north one goes along the coast the more exclusive becomes the Conifer. The native Larch, or Hackmatack, mingles its feathery branches with those of its more rigid neighbors, its cones showing dark among the soft green tufts of leaves, and only the light-foliaged Birch diversifies the sombre groups of Firs with its shining stems, like a white-robed woman at a funeral.

As the traveler turns from the shore to the interior, deciduous trees of the hardier varieties become more numerous, but the prevailing character of the coast landscape is such as is portrayed in the illustration on page 101, which is from a photograph taken at Southwest Harbor, Mount Desert, Maine.

In the cool moist atmosphere which suits their development, Spruces and Firs grow with surprising rapidity, apparently without regard to nourishment from the soil. The rockiest hill-sides clothe themselves suddenly with tiny green forms which shoot up in twenty years into an impenetrable forest. Granite ledges seem no obstacle to their growth; the sprout splits the rock in twain and pushes up bravely to the light and air among its taller brethren. On stony ground the roots of Spruces run along the very surface of the soil, drawing sustenance from dead mosses and the thin stratum of earth formed by decaying vegetation, and fertilized by bits of the fish dropped by the birds which roost in the tall tops. One of the features of a sea-side wood is the shells of sea-urchins one is sure to find among the cones which sprinkle the mossy floor.

When a great gale comes the Spruces tip over, having no tap-roots, and they will go on flourishing for some years after they have fallen, with only the dirt that clings to their straggling roots to preserve the vitality of the tree. In a hurricane the Firs snap off, or their trunks are twisted and torn from their base by the whirling of a cyclone, but the Spruces are bowled over like a lot of nine-pins, and lie in winrows like a giant crop mown by some Cyclopean hand.

Very beautiful are these growing forests in their youth. The roots of the pre-existent trees, either cut or fallen, leave soft mounds clothed with the loveliest mosses, with gay white caps or scarlet bonnets or brown hoods for blossoms. Here early spring-flowers bloom and wild vines clamber, and the paths are glossy with the leaves of Wintergreen and Pipsissewa. The young trees are symmetrical masses of foliage from root to point, and natural paths wind between them in intricate mazes, with fairy rings of open ground between the conifers. Sometimes a brook tumbles along among the shadows, which is crossed by stepping-stones, that lead into still more mysterious depths of this miniature wood, in its perfection of individual beauty when the trees are about twelve or fifteen years old.

After that the stronger trees begin to shoot up and wrestle for precedence—the space becomes crowded, the lower limbs, lacking light and room enough, begin to lose their foliage, twigs and dead branches strew the ground. The wood takes on a more sombre character; blossoms disappear; the thickets grow more difficult to penetrate; the cheerful garden gives place to the forest, with its solemn dignity, its church-like stillness and gloom, its heavy panoplies of gray pendent mosses.

Only the osprey and the crow frequent these solitudes. Heavily the sea-eagle flaps his mighty wings, as laden with his prey he slowly sweeps to his ragged nest upon the summit of some lightning-blasted Fir, whence come the screams of his hungry brood. In the openings of the forest grave circles of crows hold their parliament with loud discourse and surly wrangling.

Now and then a solitary raven flies low along the edge of the wood, uttering a hoarse and melancholy croak; through the tall trunks can be discerned the black waters of a sullen sea, and the monotone of its utterance as it breaks against the crags below mingles with the unceasing murmur of the forest. A furled white sail makes a spot of light amid the stretch of restless water, where a wave at intervals breaks into foam, but it disappears in the distance, and only the great Spruces creak and groan in the rising wind, and answer the challenge of the sea with mutterings of defiance. On the edge of the cliff the little red-cheeked cranberries glow amid their glossy leaves, and down below, in its rocky clefts, hung all summer with Hare-bells, the clean outline of the Rock Polypod is visible against the crumbling granite wall. Now and then a fragment of this crashes into the gnawing sea at its base, which ever scourges and tears at its foundations like an avenging Fury.

Lonely and terrible are the old woods on the wind-torn coast. Beside the light-houses that comfort the mariner are seen the bare scathed trunks of dead trees, all blown one way like sign-posts of destruction. The leaping waves seem ever striving to reach them, and these gaunt wraiths of trees take on eldritch forms, and seem to wave defiant arms at their watery enemies. But still the young Spruces and Firs grow and thrive upon the ruins of their ancestors, clothing the crags with verdure, and renewing daily the youth of the eternal forest, which braces itself afresh to the unending combat with the elements.

Ever since the Yellowstone Park was created the Secretaries of the Interior have had charge of it, and superintendents and other officers have acted under their authority. The successive Secretaries have given much time and consideration to this territory, and the best friends of the park have been satisfied with the care which it has received from these officers. On the 16th of February a bill was introduced into the Senate for the alleged purpose of incorporating the Yellowstone Park Company, but if enacted it would practically operate to surrender the park to four men, who are named in the bill, for twenty years, with the privilege of renewing their power for twenty years longer. The act is shrewdly drawn, so as to have an appearance of maintaining the rights of the park, while really it gives this company power to build hotels, to run cable-cars, to quarry stone, to manufacture brick, to use timber for building and fuel, and, in fact, to do what they please without any restraining power whatever. Hitherto it has been in the power of the Secretary of the Interior to grant all leases and to make all contracts, and the only safety for the park is to leave it under the care and authority of some person in high official position like a member of the Cabinet. One can hardly conceive of a more impudent demand than this one of four men for a monopoly of this immense territory and all its resources.

The first annual meeting of the New York Carnation Society, which was held at Buffalo on the 16th of February, leads one to wish that similar societies might be formed and similar meetings held by persons specially interested in the cultivation of the Rose, the Chrysanthemum, the Dahlia and other flowers. Advances in horticultural art have usually been made by students who devote themselves to specialties of some kind. The general public are not warmly interested in the development of so-called florists' flowers—that is, flowers which are molded into a fixed form, and which are not considered to have any merit unless they conform to some rigid outline decided upon by a committee as to true and ideal form. But every lover of flowers is interested in what patient and careful attention will accomplish in the way of discovering the best methods of cultivation, of hybridizing, of combating diseases, of increasing vigor and prolonging the blooming season of good plants. At this first meeting of the Carnation Society there were discussions of the highest practical value about the Carnation Rust, the alleged deterioration of varieties, the best methods of propagation, and other equally important topics. It is only through long-continued and special study that we can learn the secrets of the growth of plants, and every organization that tends to direct intelligent attention to plants and their ways deserves the best wishes of every one interested in horticulture.

Notes on Nomenclature.

Quercus Kelloggii, Newberry.—The oldest name applied to this species is that of Torrey, Quercus tinctoria, var. Californica, published in 1856 (*Pacif. R. R. Report*, iv., 138), here being considered only a variety of the eastern Quercitron Oak, and antedating the Q. Kelloggii of Newberry (*Pacif. R. R. Report*, vi., 89, 28, f. 6 [1857]) by one year. As no question now remains as to the specific distinctness of Kellogg's Oak from its eastern relative, there appears to be no good reason for not following Cooper, who was first to raise Torrey's name to specific rank (*Smithsonian Report* for 1858, 261 [1859]), Q. Kelloggii, Newberry, would, therefore, become Q. Californica, Cooper.

It is perhaps to be regretted that the specific name, Kelloggii, can be no longer retained in honor of the one who studied the Pacific Oaks so carefully; it is certain, however, that as with the "Douglas Spruce" (Pseudotsuga Douglasi becoming P. taxifolia), "Kellogg's Oak" should always stand first as a vernacular name.

Quercus tinctoria, Bartram.—Bartram's name for the Quercitron Oak, although long maintained for this species, seems nevertheless not to be legitimate, nor by any means the oldest one applied to the tree. Aside, moreover, from the fact that it is antedated by others, the name itself is not even founded on a diagnosis of the species; yet the tendency among fair-minded botanists and zoölogists to interpret rather the intent of nomenclatural codes than to adhere too rigidly to the literal meaning of a prescribed law, would perhaps enable us to still retain tinctoria as a specific name, although founded only on the following statement:

"Gigantic black Oak, Querc. tinctoria; the bark of this species of Oak is found to afford a valuable yellow dye. This tree is known by the name of Black Oak in Pennsylvania, New Jersey, New York and New England. . . . I can assert that many of the Black Oaks measure nine, ten and eleven feet in diameter five feet above ground" (Bartram, *Travels*, p. 37 [1791]). Doubtless the large size and production of a yellow dye, aided by a system of seclusion, points circumstantially to the Quercitron Oak.

There are, though, cases in which the first name, similarly established, has been discarded for a later one secured by a strictly technical diagnosis; so that those inclined to follow the letter of the code may not complain if tinctoria be set aside for an older if not the oldest name.

The oldest name suspected to belong here is the Quercus velutina of Lamarck (*Encycl. Meth. Bot.*, i., 721), published in 1789, two years previous to Bartram's *Quercus tinctoria* (1791). Koch (*Dendrologie*, ii, pt. 2, 68) took up Lamarck's name, but seems not to have been followed by any subsequent writers. Professor Sargent questions the validity of Quercus velutina, and cites it as a synonym of Quercus tinctoria (*Cat. For. Trees*, 149). But while there must always remain doubt in the identification of names in the absence of good figures or specimens, there seems to be as good reason for taking up Quercus velutina, Lamarck, as for still retaining Quercus rubra of Linnæus. Of Quercus velutina, Lamarck says, "Quercus foliis obovatis angulatis subtus brevissimè lanatis, angulis seta terminatis" (l. c.); of Quercus rubra, Linnæus says, "Quercus foliis obtuse-sinuatis setaceo-mucronatis" (*Spec.*, ed. 1, 996). Certainly the foundation of Linnæus' name—which as the oldest no one thinks of disturbing—can as well be questioned as the propriety of establishing Lamarck's Quercus velutina, the oldest name for the Quercitron.

An older name also for this Oak than Bartram's *Quercus tinctoria* (1791) is the Quercus discolor of Aiton (*Hortus Kewensis*, iii., 358), published in 1789.

Quercus falcata, Michaux.—As already pointed out by Professor Sargent (Garden and Forest, ii., 471), there are two or three other names included in the synonomy of this species which are much older than Michaux's Quercus falcata (1801). Wangenheim's Quercus cuneata (1787) has, however, been selected as the only authentic name to supplant Michaux's Quercus falcata. Of the identity of Quercus cuneata there can, of course, be no doubt, based as it is on a figure of a well-known form of the plant. But before passing this point, it may be advisable, since the inconvenience of a change must be made from Quercus falcata, to inquire if there is not sufficient reason for taking up Marshall's Quercus nigra digitata (1785), the oldest name supposed to have been applied to the Spanish Oak. His Quercus rubra Montana may also belong here, but occurs later in the *Arbustum*. Of the two descriptions, the first and the one under "Quercus nigra digitata" seems to be the more suggestive of the species Marshall had in hand, and under this caption, "Quercus nigra digitata—Finger-leaved Black Oak," he says:

"This grows naturally in low lands, rising to the height of thirty or forty feet, with a trunk of considerable thickness, covered with a rough blackish bark. The leaves are sinuated, or divided toward their extremities into two or three pretty long, somewhat finger-shaped, lobes of unequal length, with others shorter, sometimes at the sides; all of

which end in a bristly point. The acorns are small, but the cups pretty large."

What other of our eastern species Marshall could have had in hand than the common trilobed form of the Spanish Oak is difficult to imagine, nor does it require a stretch of imagination to suppose that the name and description apply to this Oak. If this be conceded, the Quercus falcata of Michaux becomes Quercus digitata, Marshall.

Forestry Division,
Dep't of Agriculture, Washington. *George B. Sudworth.*

New England Parks.

THE MIDDLESEX FELLS.

THOUGH the Middlesex Fells are only a park in prospect, the hope is so confidently entertained that they will be acquired by the state for public purposes, that I take the liberty of classing that natural pleasure-ground among those which already belong to the public by gift or purchase.

Already a movement is on foot to acquire the four thousand acres of rolling woodland which are included in this region, to retain it as a breathing-place for that greater Boston which is in time to surround the important peninsula, as Paris encircles the island in the Seine, and as London surrounds "the City." This great scheme of consolidation commends itself to the imagination for its splendid possibilities, and as we see Boston extending itself throughout its charming suburbs, with which it keeps itself far more in touch than New York and Philadelphia do with theirs, the time seems not far away when the city will include them entirely, and while a system of prefectures shall provide for the local government of the outlying departments, the towns within a twelve-mile radius may come under the wing of a central municipal government. Politically one cannot wholly be reconciled to this fine scheme, but theoretically it has a picturesque splendor, and if it is ever achieved the Middlesex Fells will be an important centre for the numerous towns that border upon the region—Melrose, Medford, Winchester and Malden all abutting upon the open spaces which will in time be so precious to the city-dweller.

What are the Middlesex Fells? is often asked, now that this felicitous title, first applied to them some twelve years ago by that true lover of nature, Mr. Sylvester Baxter, has passed into such popular acceptance that they even have a local habitation as well as a name, in a small railway-station known to the succinct Pathfinder as Fells.

These fells are a series of low, well-wooded hills, the highest of which is some 300 feet in altitude, which are easily accessible from the western division of the Boston and Maine Railroad, from either Malden, Medford or Melrose. To visit them extensively and thoroughly in a short time a carriage is necessary, and by alighting at Melrose, where one can easily be procured near the station, a few hours will enable one to explore them satisfactorily. To those who live near by they afford charming possibilities for tramps and climbs, already discovered by the Appalachian Club, and as good roads through them abound, they can comfortably be explored on a bicycle, with occasional digressions on foot from the beaten track.

The first point of note in the Melrose section is Pine Bank, the property of Mr. E. S. Converse, where, among other interesting features, a curious glacial moraine, covered with fine old conifers, is interesting to visit. This ridge of land, deposited by some long-departed glacier, carpeted thickly and softly with Pine-needles, slopes on either hand to ravines, also well wooded with Pines and Hemlocks. The long, straight walk under their sighing branches is very beautiful, and the formation of the moraine is full of interest and suggestion.

The wildness of this part of Mr. Converse's estate, the pleasing views from its elevations, and the beauty of the trees, render it very attractive. I am told that should the Middlesex Fells be acquired by the state, it is the purpose of Mr. Converse to give a portion of this valuable property to the public; another instance of the noble generosity of the citizens of the Commonwealth of Massachusetts.

From this point a short drive brings one to the Cascades, a fine natural feature. Leaving the high-road, a climb through a grove of Oak-trees brings one to the foot of an eminence, from the top of which a stream comes tumbling down over a rocky cliff, dripping from ledge to ledge of the fern-hung rocks mossy with the perpetual moisture, and rippling noisily away in a stony brook below. This cataract, which in spring, when swollen by the melting snows and frequent rains, must be quite wonderful, was, when I saw it, so shrunken by the long drought that it was but a Staubbach of a fall, and showed little more than a trickle down the face of the massive rocks, picturesque with their drapery of Ferns and Lichens.

In a park, with proper treatment, these cascades would be very effective, and paths might lead easily to the top of the hill, which now can only be scaled by some rather rough scrambling.

Another charming object in the Fells is Spot Pond, a lovely sheet of water bordered by woods, along which the road leads in attractive windings that give varying views of distant hills behind the blue water. In the neighborhood of the pond is the Langwood Hotel, a spacious hostelry with large verandas enclosed in glass, which is open to visitors at all seasons of the year. Here we dined comfortably at a table artistically strewn with brown Chesnut-leaves, and had a chance to appreciate the taste and skill which have presided over the appointments of this pleasant inn.

But of all the many points of view in the Fells, with its numerous drives and walks, affording constant variety of landscape, that which we obtained by climbing Bear Hill was the most beautiful and striking. This is an elevation of some three or four hundred feet, to which one climbs through thick woods, up a steep slope, encountering fences and snags by the way, but coming out at last upon a cleared summit from which there is a famous outlook.

Seen of a soft day in early November, with the distant hills bathed and glorified in the purple haze of Indian summer, the chimneys and towers of distant towns took on mysterious meaning, while Tufts College, upon its eminence, might well be mistaken for an imposing castle. Banks of hills rose one behind the other in tender diaphanous outline, the Milton Hills merely a hint against the sky, and the State-house dome a glimmering spark of fire amid the forest of pale spires that represented Boston. Translucent delectable mountains encircled the horizon, among which dim familiar peaks were visible. Monadnuck and Wachusett were but mountain dreams in this vision, where the tiers of opalescent highlands, bathed in the low sunlight, were transfigured by the atmosphere of the dying year.

Near at hand gleamed the waters of Winchester reservoirs and Spot Pond. The woods of Lynn stretched away like a wilderness in the middle distance, while the neighboring summits of the Fells, crowned with trees and dwellings, clustered in undulating surface of varying heights about Bear Hill, from which the eastward scope of greater Boston could be clearly discerned, while up its steep sides clambered the Pines and Hemlocks, the Oaks and Maples that clothed it in a cloak of russet, faced with green. The top of the hill was bare of trees, but well furnished with masses of wild shrubs hung with fruit. The Privet showed its dark berries; the Berberries were gay with ruddy clusters; the Sumachs glowed with crimson leaf and deep red spikes of fruitage; mosses grew soft and green under foot; the Scrub Oaks clustered in brown groups, and acorns lay scattered on the ground. The tints, all soft and harmonious, ran through a scale of russet and copper-color to the dullest red. Stiff little Junipers rose here and there in the symmetry of early youth, some bluish and some of a deep yellow-green. The hill-side was slippery with the fresh-fallen leaves, which crackled under foot; vistas opened through the wood as we climbed and descended the hill that offered points of view in different directions, each picturesque with a new beauty.

An autumn day in the woods is one of the delights of existence; the cool fresh air renders exercise a pleasure; the transitory brightness makes each effect more precious, as if it were to be the last. The beauty of our atmosphere at this season is unrivaled even in Italy, where the same glamour is seen at other seasons. Moisture and smoke are the secret of the ineffable colorings of the Bay of Naples, for when a keen clear wind drives away the puffings of Vesuvius the sharp black volcanic outlines lose their beauty, and stand up in all their barren harshness, cold and awful and forbidding.

So when distant woods are burning and the air is humid and chill, our austere New England puts on a Neapolitan robe of azure and violet that rivals the hues of Capri and Amalfi. Her granite hills are transformed to porphyry and jasper, her prosaic outlines grow soft with strange suggestiveness. A far-off chimney becomes a campanile; a factory is glorified into a fortress; an institution looms like a château. There is a joy in the dim silhouette of distant roofs against the sky, an elevation in the curve of dome and upward lift of spire, a hint of mountain-ranges in a row of misty hill-tops.

What the imagination is to the mind, the atmosphere of Indian summer is to a Massachusetts landscape. Unreal, you say; but who shall dare to question the truth of Nature viewed, as she best loves to show her coquettish face, half-

veiled in violet gauzes? For Earth herself in her seductive moods loves to confound the realist, and to force him to lift his microscopic eye to behold her splendors with a vision too dazzled to dwell upon the scars and wounds man makes upon her noble bosom.

In that breadth of vision which excludes detail, in that elevation of view which reveals the type and not the individual, the grand sweep of the hills, and not their gravel-pits and quarries, the mighty mass of the forest, and not its unsightly clearings and half-dead trees, can Nature's highest beauty alone be revealed, and her loftiest aspects brought to light.

This is truth poetized, not the every-day appearance of a prospect, but that vision which, under rare conditions, comes to reveal to man the higher loveliness oftenest hidden from view, but none the less a true perception for him who has the power to sing his song, or paint his picture with the notes or color drawn from the inspiration of a fleeting moment, which he has the gift to make permanent.

Thus that November afternoon the Middlesex Fells became an enchanted region of pale sunlight and shadow, such as we might seek in vain to find on another occasion. Not always can it be bathed in such misty tints, or brightened with such mellow autumn hues as made its distances dreamy, and its foregrounds rich for the group that were privileged to see them in gala attire on that fortunate day. But as a possession for the state it will ever have a serious value, this open, breezy varied space of hill and valley, lake and woodland, which it would be a misfortune to sacrifice to any purely utilitarian idea.

Its natural ruggedness renders it difficult for building, impossible for agriculture, so that it has been preserved in natural wildness and beauty for this very time, when the best interests of the state demand that it should be made a reserve that will add incalculably to the real value of the neighboring towns, which can rejoice in its fine, health-giving opportunities, and gain new dignity from their neighborhood to so noble a pleasure-ground.

Hingham, Mass. *M. C. Robbins.*

Spring in West Virginia.

THE advance-guard of spring reaches West Virginia early in February, and we celebrate its arrival with a feast of Water Cresses, which are as grateful to snow-wearied eyes as to the palate. The birds know very well that spring is coming, for in February the cardinal grosbeak whistles boldly on every frost-free morning, and the bluebird takes you into his confidence in his quiet fashion to say that the season of flowers is really at hand. The shrubberies on this 19th day of February are full of swelling buds, and even some insect life is discoverable here and there, and spider threads are seen thrown from one limb to another. Very striking is a low clump of Honey Locusts, the deep red spines of which make an effective contrast to the striped bark of the branches, a light gray on olive-green and very smooth and satiny in texture. These curious waves and markings are confined to the young growth and are conspicuous now. Later on, in the exquisite delicacy of its foliage, the red leaflets matching the thorns in color, it will rival any of the greenhouse Acacias. The Hypericums are already leafing out and H. aureum is fairly covered with its stiff linear leaflets, dark green with red and orange tints on the latest comers.

Wall-flowers are in bud, bulbs are peeping through the ground, some of the early Hyacinths which stand in a sheltered nook are already well advanced. Spiræa prunifolia shows many tiny leaves, while S. Thunbergii is covered with knobby flower-buds, as are some of the Cydonias, while others show a few blood-red leaves just starting, and they are almost as pretty as the blossoms. Caragana altagana shows a green rosette here and there, and is only waiting for two or three warm, sunny days to open more of its curious leaf-buds, which look like little blotches of green paint scattered over the branchlets. Among the flowers, Crocuses are following the Snowdrops, and Chionodoxas are hard after them, with the earliest Jonquils, Daffodils, Violets and the lesser Periwinkle almost in sight. These modest blossoms are the ones which the flower-lover prizes above any of the later, more abundant and more gorgeous blooms which the lavish month of May brings with it.

It is a good plan to have a space in the shrubberies devoted to the March bloomers, some of which are found in very few gardens. There is a very early-blooming Rhododendron, R. Dauricum, that is not planted half as often as it should be. Daphne Mezereum shows with us the first rosy bloom of the year, the predominating color for early spring flowers seeming to be yellow, purple and white. Daphne Genkwa is a charming plant of slow growth and fragrant violet-colored flowers, and probably the sweetest shrub that blooms in March. Then there is the Leather-wood (Dirca palustris), which grows wild in our woods, displaying small yellow bunches of flowers about the time that the Marsh Marigolds brighten the forest-pools with their gold. This shrub is offered by some nurserymen, and it is of easy cultivation away from its native habitat. Jasminum nudiflorum is a graceful shrub of early bloom, and cheerful in spite of its weeping habit. It is deservedly a favorite with designers of parks, and is much used about the public buildings in Washington, where it celebrates Easter Sunday after a sunny fashion peculiar to itself. Prunus spinosa and P. Pissardi bloom here late in March and are rather earlier than the Forsythias.

In the wild garden the Blood-root, Saxifrage and Twin Leaf will bloom as the earliest Fern-fronds are unrolling, and they are quickly followed by Hepaticas, in their woolly overcoats, the first Anemones and the fragrant Epigæa, which some people are able to coax into forgetting its native haunts and blooming in civilized gardens. On the very first of February, which was a genial day, we found reddish brown barren catkins two inches long, and tiny unopened pistillate flowers on our Japanese Alder, and these gave as keen pleasure as the bloom of a favorite Rose-tree in June. These catkins are far in advance of all the flowers of our other trees. Scarlet Maples, Aspens, Willows and Hazels are growing more interesting as the days lengthen, but to this Alder belongs the glory of being the first tree to bloom in spring.

Every day we watch the earliest bloomers among the shrubs for signs of growth. Xanthocerus sorbifolia, which the youngest member of the family will call rhinoceros, receives much attention. It has not bloomed yet, being, indeed, only eighteen inches high, and it is not likely that it will gratify our curiosity for another year, but it is said to produce blossoms when very small. Chimonanthus fragrans is also of much interest, as it has never been seen in bloom here. The red-branched Cornels, the yellow-stemmed Forsythias, the green twigs of Scotch Broom and the Japanese Corchorus are also attractive, and the bark grows brighter on them all as the buds begin to swell. Lonicera sempervirens was the first of all our plants to show the tender green of its spring foliage.

Rose Brake, West Va. *Danske Dandridge.*

Plant Notes.

Some Recent Portraits.

The February issue of the *Botanical Magazine* contains portraits of the great Javanese Primula Imperialis (t. 7217), a noble species, producing immense leaves and tall scapes, with many whorls of orange-colored flowers.

Hydnophytum Forbesii (t. 7218), a representative of the wonderful group of epiphytic plants, peculiar in their tuberous root-stalks, which form nests for certain species of ants. There are two principal genera of these plants, natives of the Malayan and Pacific coasts and islands, both belonging to Rubiaceæ, and closely allied one to the other. They are Myrmecodia, with eighteen species, and Hydrophytum with thirty, and they were mostly discovered by the distinguished Italian botanist Beccari, who has bestowed upon this group the appropriate name of Piante ospitratice. The tuberous rhizome of Hydnophytum Forbesii is lobed, echinate, and produces short stems with subsessile, obovate, obtuse leaves, and axillary, short-stemmed flowers with a short calyx and an elongated, graceful, cylindrical, white corolla. The fruit is elipsoidal, bright red, drupaceous, slightly compressed and two-lobed at the apex. Hydnophytum Forbesii, which is certainly one of the most curious and interesting plants recently introduced into cultivation, was discovered in New Guinea by Mr. Forbes, author of *A Naturalist's Wanderings in the Eastern Archipelago*, who, in 1886, sent it to the Royal Gardens at Kew, where it flowered three years later, and again last year.

Begonia glaucophylla (t. 7219), a plant now well known in gardens, but of unknown origin and history, and possibly a hybrid.

Vicia Narbonensis (t. 7220), a native of eastern Europe and western Asia, and chiefly interesting for the fact that it has been supposed to be the original form of the common

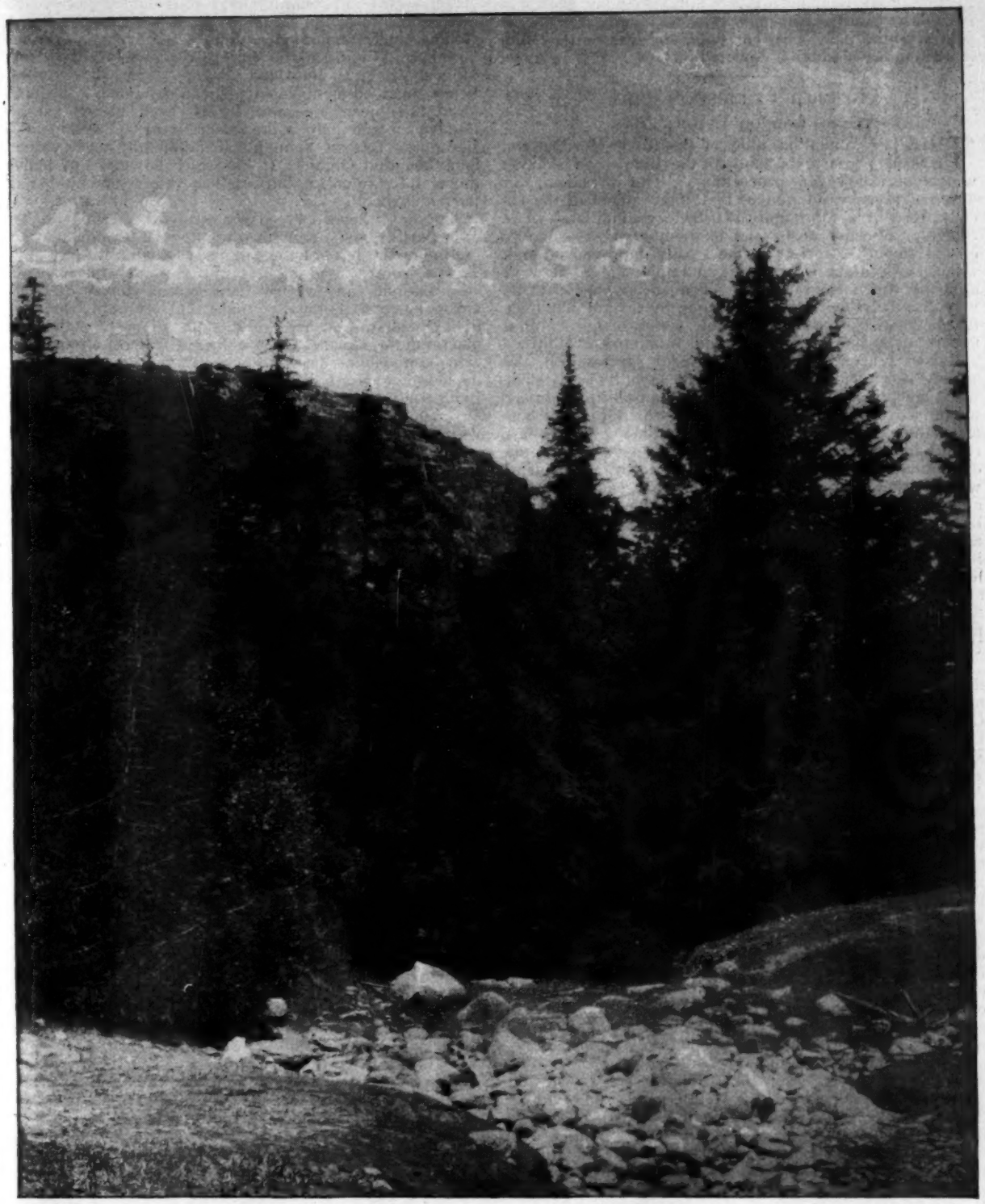

Fig. 17.—A Spruce Forest on the Coast of Maine.—See page 97.

bean, a fact which De Candolle, in his *Origine des Plantes Cultivées*, does not find supported by sufficient evidence.

Neobenthamia gracilis (t. 7221), a singular terrestrial Orchid, a native of eastern tropical Africa, with long tufted sparingly branched stems, which attain a height of four feet and which are clothed almost throughout with grassy leaves and terminate with a raceme of small white flowers, with a short, hardly spreading perianth, and a lip spreading from the base and slightly recurved above the middle. Neobenthamia, a genus which serves to com-

memorate Mr. Bentham's labors in revising the genera of Orchids for the *Genera Plantarum*, was discovered by Sir John Kirk in the Zanzibar kingdom, and was sent by him in 1884 to Kew, where it flowered in 1890.

Foreign Correspondence.

London Letter.

THE last annual meeting of the Royal Horticultural Society was remarkable for the tone of satisfaction which pervaded the proceedings. The President, Sir Trevor Lawrence, announced that "the affairs of the society were in a thoroughly satisfactory condition," while Professor Michael Foster, an ex-member of the council, congratulated the society on the greatly improved outlook which was evident in the report, and upon the good work done by the present council. The society has paid its way, has increased its constituency by several hundreds in the year, has issued a valuable series of horticultural papers in its journal, and has held numerous exhibitions and conferences. As Baron Schrœder expressed it, the society is growing rapidly and will soon burst its skin, when he anticipates it will assume that position among the industrial societies of this country which it is now better qualified for than it has been at any time within the last twenty-five years. This improvement is solely due to the determination of the society to mind its own business, which is that of promoting all matters that tend to improve and develop horticultural art. There was a time in the history of the society when it went far beyond this, and as a result it not only found itself in financial straits, but it lost the sympathy and co-operation of the great body of horticulturists. The President alluded to the want of a suitable exhibition-hall and offices, expressing at the same time a hope that the society would be as well provided for in this respect as the horticultural societies in the United States are.

An exhibition of plants and flowers was held on the same day, and proved of exceptional interest and attraction. All the available space was filled with groups of beautifully grown Cyclamens, Primulas, New Holland plants, stove-plants, Orchids and fruit. Messrs. H. Low & Co., of Clapton and Enfield, are endeavoring to revive the cultivation of hard-wooded greenhouse-plants, such as Boronias, Correas, Acacias, Pimelias, Chorozemas and Eriostemons, which were a principal feature in English gardens a generation or so ago. Mr. Cannell marks the progress made, chiefly by himself be it said, in the improvement of the popular Chinese Primrose. The Messrs. Walker, of Hounslow, do the same for Cyclamens. No greenhouse-plant is more beautiful or more valuable than the Persian Cyclamen when it is well grown; but, as a very clever London grower remarked last year, although everybody knows their value and attempts their cultivation, it is only very few who have the luck to succeed. Orchids predominated over everything else shown. Large groups from the principal growers and interesting collections from various amateurs were numerous and full of attraction for connoisseurs. Among the notable specimens was Phalænopsis Brymerianum, a beautiful plant, with large healthy leaves and a strong flower-spike, from Messrs. Low & Co. This is one of the rarest of the Moth Orchids, only two or three others being known in cultivation. It is like P. intermedia in general characters, differing chiefly in being larger and darker-flowered. The variety of P. Schilleriana, recently named purpurea, was also exhibited by the Clapton firm. It differs from the type in being a shade darker in color. Cymbidium Hookerianum, a beautiful species rarely seen in flower, was shown, the spike having flowers larger than those of C. giganteum, with broad fleshy pea-green sepals and petals, and a large spreading three-lobed lip, colored creamy white, spotted and tinged with crimson.

Cypripedium Lindleyanum is a species with broad stout leaves, glossy green, margined with brown, and an erect spike, a yard high, bearing large boat-shaped green bracts and curious browny green flowers. It is a native of British Guiana, and is synonymous with C. Kaieturum. Various new hybrid Cypripediums were also shown, C. Hera, from Messrs. Veitch, C. Juno and C. Ceres, from Mr. Drewett, being awarded certificates. The first-named is a grand plant, the flowers enormous in size, well formed and attractive in color. It is the offspring of C. Boxalli and C. Leeanum. Lycaste Youngii, as exhibited by the President, is a beautiful Orchid. It bore fifty flowers, not unlike those of L. aromatica, but brighter yellow and longer in the peduncle.

Among Cattleyas I noted some most beautiful varieties of C. Percivaliana, one with white flowers, named alba, being the rarest, but not the prettiest. A white variety of C. Trianæ, some grand blooms of the rather refractory C. speciosissima, and a very dark-colored variety of Lælia anceps were exceptionally good. The large-flowered distinct Oncidium Loxense, which is one of the finest of the macranthum section, Odontoglossum ramosissimum and Oncidium splendidum were represented in excellent form, the Odontoglossum much better than I thought it could be. Evidently this is a very variable species. A new hybrid Zygopetalum named Leucochilum was shown by Messrs. Veitch, the raisers, its parents being the diverse Z. Burkei and Z. Mackayi, and several new hybrid Dendrobiums were submitted for certificates, and in some cases obtained them. The pretty little alpine, Oncidium Phalænopsis, was shown in considerable variety by Messrs. Sander & Co. In my opinion this is one of the most charming of small Orchids for the cool house. It often fails under cultivation because it is kept warmer than is good for it. From the same firm came Epidendrum Watsonianum, a species remarkable for its large pear-shaped pseudo-bulbs, spikes as thick as a man's thumb and of great length; the flowers are like those of E. verens in shape and size, but colored apricot-yellow, mottled with green, the tip being white, with rosy spots. Disa Cooperi, from Natal, was represented in the St. Albans group by a strong plant bearing a spike eighteen inches high of yellowish green flowers, in which the fat upward projecting spur is extremely odd. Odontoglossum Edwardii and a variety of it named Ioplocon, the latter very fragrant, and with longer sepals than the type, were conspicuous, the rich violet-purple of their flowers being exceptional among Orchids.

Bertolonias were exhibited by Mr. F. Bause, the well-known raiser of hybrid Dracænas, Coleus, etc., in much grander colors and vigorous health than I had ever seen them. Mr. Bause is almost a magician in the way he manages many plants. These Sonerilas, for instance, were in four-inch pots, yet they were ten inches high, had leaves as large as an ordinary sheet of note paper, and colors as rich as rubies. I asked him what the manure was. "Oh, common soil, just; you merely want to keep them close to the glass in a warm little house, don't coddle them, and don't let them flower." He saw no reason why Bertolonias should not be grown two feet high! Kew exhibited a very large head of flowers of the new Brownea Crawfordii, which was declared to be the finest of all Browneas; a spike of Aloe supralævis, mistaken by most people for a "grand new Kniphofia"; Greyia Sutherlandii, the beautiful crimson-flowered Saxifragaceous shrub from Natal, and Hæmanthus magnifica. Messrs. Veitch sent a basket of plants in flower of the new Lachenalia Aureliana, which is simply a bright-colored form of the old L. pendula. Some pretty specimens of trees and shrubs in flower, said to be from the open ground, were contributed by the same firm. They included Amygdalus Davidiana, with its variety, alba, and Lonicera Standishii. These would be worth growing largely for forcing in winter.

International Horticultural Exhibition.—Preparations are being made for what it is hoped will prove a comprehensive exhibition of gardens, garden products, garden art—of everything, in fact, appertaining to horticulture. It is to be held on the grounds which were prepared some years

ago for the American Exhibition held in London, and which have since been annually devoted to other exhibitions from Germany, Italy, etc. According to the prospectus, this exhibition, which is to open in May and continue till October, is to display the state of progress of horticultural science, taste, resources, implements and plant culture at the present date, and, in addition, the various departments and exhibits will serve as models for every one who loves a garden. Examples of the gardens of all ages will be prepared, including restorations of the ancient gardens of Egypt, Greece and Rome; copies of those in China and Japan, and types of the Baronial, Italian, Tudor, Jacobean, Georgian and Victorian eras. A large sub-tropical garden will also form a feature of the attractions offered. The tea-gardens of India and Ceylon will be represented, illustrating the growth of the Tea-plant, etc. Arrangements have also been made whereby foreign countries will co-operate to show the progress in horticulture in their respective lands. Flower and fruit shows, special exhibits of American plants, Orchids, etc., will be held periodically. Lectures on practical gardening will be given regularly. Pictures and photographs and a reference library are being collected. The scheme is ambitious enough, and if it can be anything like accomplished it can scarcely fail of success. The chairman of the executive is Mr. H. E. Milner, F.L.S., who practices as a landscape-gardener in England, and whose book upon this department of horticulture was published about a year ago.

London. *W. Watson.*

Cultural Department.

The Hardiness of the Satsuma Orange.

HAVING been deeply interested in this Orange, the hardiness of which has been so much talked about, I have from time to time written notes of its encouraging behavior here. I have now to record that it has reached the limit of its hardiness with full exposure. My trees were purposely planted on the most exposed spot I could select, a hill-top 400 feet above tide, which has the unbroken sweep of the north wind for miles. In the winter of 1890–91 the lowest temperature noted was nineteen degrees, Fahrenheit, and no harm was done to foliage or wood. January of the present year was a cold stormy month, and the trees were subjected several times to this same and a little lower temperature. But on January 26th the mercury suddenly fell, with a cloudless sky, to sixteen degrees by the sheltered thermometer, and several degrees lower by a thermometer exposed in the air near the trees. The result is that they are badly cut, and the young shoots killed. It would seem, then, that the extreme cold these trees will endure without harm is from eighteen to twenty degrees above zero, so the hope that they might prove entirely hardy, as has been suggested, "as far north as Delaware," is doomed to disappointment. They seem to be just about as hardy as the Fig. Fig-trees of the same age subjected to the same exposure as these Oranges are killed-back to about the same extent, while Figs a few yards away south of the hill-top, and protected by Pine-boughs stuck along between the rows, are entirely unhurt. This indicates that the Satsuma may be grown with complete success here in sheltered places and in our coast country from Morehead to Wilmington and about Newbern. Wherever, as in our coast plain, the Gardenia florida grows into a large shrub in full exposure, there the Satsuma will grow well, especially as the black peaty soil there will suit it better than our red clay. We have Gardenias growing unhurt under the shelter of our college walls, but there is little doubt that they would have been killed to the ground had they been in company with the Satsumas. Our trees are on the stock of Citrus trifoliata, and on this stock they will probably remain mere bushes, yet this makes it more easy to protect them, and in any sheltered spot where the Fig and Gardenia stand unharmed I have no doubt they can be grown.

Not far away from our Satsuma Oranges, but sheltered by buildings, we have a group of Olives. The largest of these, a Nevadillo Blanco, in the centre of the group, is killed outright, while those on the outside have not even lost their leaves. These trees were planted only last spring, and those that survive may be able to endure greater cold hereafter. An Ipomœa from the lower Rio Grande (I. Texana), with a hard woody stem as stout as one's wrist, is killed to the ground, if not entirely dead, while a Century-plant (Agave Americana) on the hill-top near the Oranges has lost only its outer leaves. Pittosporum Tobira shows not the slightest sign of injury, nor do any of the plants in my hedge of Citrus trifoliata.

Of course it is too soon to estimate the full amount of damage the winter may cause, as the sudden reverses of our spring are now to be encountered, but I think it is evident that the Satsuma Orange will come through in a battered condition.

Raleigh, N. C. *W. F. Massey.*

Pyrethrums.

WITHIN the past few years both the double and single varieties of these fine border perennials have been improved to such a degree that it is hard to decide which ones to choose out of the long lists catalogued by dealers, especially since the new and high-priced varieties are naturally described as the best ever offered. It is always safe, however, to begin with well-tried kinds, and add the newer ones later if they are desired. Pyrethrums have met with much favor among hardy plant growers quite recently, as it is not very long since the fact of their hardiness was announced as a discovery in some gardening papers. There need be no longer any doubt as to their ability to winter in safety, but the way to insure this is to plant them in spring, so that they are well established by fall. The one thing Pyrethrums dislike of all else is disturbance of the root; once established and let alone success is certain. They seem to have little preference as to soils. I have grown them equally well in heavy soil and in a very sandy and dry one. The single varieties, especially the colored ones, are most in demand now, and for use as cut flowers they are far preferable to the double kinds. Even for border decoration the double varieties have a somewhat lumpy appearance when in bloom, and the first rain gives them a disheveled air, while the single flowers stand up fresh and bright. For both these reasons the double varieties are gradually making room for their more natural and graceful relatives, which present at the same time the oldest and most recent phases of the development of Pyrethrum roseum. The original is a native of the Caucasus, and is one of the plants from which is obtained the insect powder of commerce.

Some brief notes on propagating the most desirable varieties will explain the system which I have found satisfactory. By using it 300 plants were obtained from twenty in one year after they had been imported, and each of the 300 was better than the originals at the time of receiving them; for Pyrethrums are extremely difficult things to import successfully. As soon as frost leaves the ground these plants are among the first to show signs of growth, and when the first small leaves are developed the clumps should be lifted carefully and the soil shaken or washed off the roots, when it will be seen that all these young shoots may be easily severed from the root-stock, many of them with roots attached. Others may have no roots, and these may be placed in the propagating-bench, where they will speedily root, and when they may be potted in three-inch pots and carefully nursed for a few weeks before planting in the open ground. Those shoots that have roots when detached from the parent plant may be potted and placed at once in a cold frame, where they will grow on as if nothing had happened, and will even produce flowers in their season, but these are best pinched off as soon as they show, as this will induce the plant to make side shoots and become a much stronger plant for the next season. This method of propagation is very simple, and with a cold frame even a novice may increase plants in this way if he begins in time—that is, before the plants have made too much growth. If the work is delayed until the leaves are more advanced, and the sunshine is stronger, the plants will require shading, which will weaken them. The winter cold has few terrors for established Pyrethrums, but a hot dry summer after first planting them is most trying.

Pyrethrums, like most other hardy plants, may be easily raised from seed, and is a good way to form a collection quickly where they are required in quantity for cutting purposes. Named kinds may be acquired as chances offer. It seems scarcely necessary to name any kinds as being better than others. I have found that both French and English raisers have a set peculiar to themselves, and there is very little, if any, choice between them. A list taken from all would be too large for the needs of most gardens. It is quite difficult to obtain a good named set without importing them, which is perhaps explained by the fact that the annual demand is so great that growers find it hard to increase their stock rapidly enough to meet it. When the first cost is considered and the usual losses added, it is not surprising that so few are grown to name.

South Lancaster, Mass. *E. O. Orpet.*

Covering Greenhouse Walls.

A BLANK wall, such as is often seen in small conservatories, especially those attached to dwellings, detracts greatly from the appearance of the house. Such a wall may be covered in various ways, and one very pretty way is by a screen of earth attached to the wall in which are planted a variety of small plants. Probably the easiest and best plan for such planting is to put strong screw-eyes into the wall at short distances apart, using eyes large enough to project three or four inches from the wall, and to these to fasten strong galvanized wire netting with meshes measuring from three to four inches. The space so formed should then be filled in with a coarse, open compost, in which the plants may be set through the meshes of the netting. A charming effect can thus be secured by a proper mixture of plants with bright foliage and Ferns. Among the former are Marantas, small Crotons, Anthuriums, Peperomias, Isolepis gracilis, Hoffmannia refulgens, small Dracænas and many others, while the list of Ferns may be an extended one. The Adiantums will naturally take a prominent place, such sorts as A. cuneatum, A. hispidulum, A. capillus veneris and A. assimile being almost indispensable, while some of the Nephrolepis, Pteris serrulata and P. cretica, in their various forms, are almost equally useful. If the wall to be covered is in a Fern-house, the covering may consist entirely of Ferns and Lycopods, without any admixture of other foliage-plants. Among the Lycopods, Selaginella Wildenovii is especially handsome for such use, the bluish tint of its fronds being remarkably attractive, but as the shoots of this species will sometimes attain a length of six or seven feet it becomes necessary to peg them into the soil in order to keep them from falling down. S. uncinata is also an admirable sort, and will cling closely to the soil without any special attention. S. Martensii and its variegated form are also useful plants for this purpose. Among Ferns the Davallias, and some of the Polypodiums and Aspleniums, should not be neglected. Little need be said as to cultivation, for unless the soil on the wall be overwatered before the plants become established, there will be but little difficulty in securing a healthy growth of the Ferns and other plants recommended.

Where the use of this plan would be inconvenient or impracticable, the wall may be readily covered with Ficus stipulata or Pothos argyræa, or other close-growing creepers, these two being decidedly among the best for the purpose, from the fact that their rootlets cling as firmly as those of the Virginia Creeper, and their foliage is neat. But whatever plants are used for this purpose they should be entirely free from scale, mealy bug or other insects, as it is practically impossible to clean them afterward, and when once infected with such vermin plants soon become disfigured or entirely ruined.

Holmesburg, Pa. *W. H. Taplin.*

Two Good Climbers.

DURING the winter months no plants are more attractive than Bignonia venusta on account of its abundant flowers and their bright color. The flowers are tubular, three inches in length, with five oblong lobes, and a very bright orange color. They are produced in terminal axillary clusters in great profusion. A well-grown plant on the roof of a conservatory will have pendent sprays from two to five feet long, bearing hundreds of flower-clusters. The Bignonia, to attain such luxuriance, requires a good border to grow in, but it will also succeed well in a box three feet square and nine inches deep. Perfect drainage is necessary whether the plant is in box or border. Good turfy loam, with an admixture of one-third leaf-soil, or well-decomposed manure, makes a suitable soil, and if the loam is heavy sand may be added to keep it porous. Watering must be liberal during the growing season, with occasional liquid manure, and the foliage must be kept clean and healthy by syringing. The plant enjoys full light and an ordinary greenhouse temperature, requiring little shade in summer, as the matured wood produces more and better flowers than soft unripened wood. It continues in bloom for several weeks during the winter months. After flowering, all weak growths and branches that have produced flowers should be cut away, and new growth should be encouraged for next winter's flowers. The young shoots should be trained and tied to wires or rafters, as the tendrils, if not attended to, will soon form a tangled mass. This Bignonia is easily propagated by ordinary methods from young stiff side shoots in spring.

Lophospermum (Maurandya) scandens is a most graceful plant, and adapted to many modes of culture. As a winter-flowering plant it can be trained to wires under rafters of the greenhouse or along under the angles of the rafters lengthwise, from which graceful branches will hang, producing freely rich Gloxinia-like flowers of a deep rosy tint. It is also adapted for trellis-work, but climbers on such pieces are usually stiff and formal. Most of them are best trained to wires under rafters or along the edges of benches lengthwise of the house. The stronger ones can be trained near the top of the house, others near the angle of the rafters below. The Lophospermum thrives well as an ordinary house or window plant in winter. Out-of-doors it is one of the best climbers for summer decoration, and it can be planted against rustic-work fences, poles, trained to wires or strings by the dwelling-house, piazza, or any other place where such plants delight to ramble. For pot-culture the soil should not be too rich. A mixture of good turfy loam and manure that has been laid up a season is useful for most kinds of greenhouse-plants, with an admixture of leaf-soil and sand to keep the soil porous. Good drainage is indispensable with all pot-grown plants. It is easily raised from seeds or cuttings early in the season, for summer use, and in August for winter-flowering.

Dongan Hills, N. Y. *Wm. Tricker.*

Veltheimia viridifolia (Aletris Capensis) is one of those odd bulbous plants often to be found in private greenhouses, a reminiscence probably of the time when Cape bulbs were more popular than at present. Like most Cape bulbs, it seems to need cool treatment, with very cautious forcing and a perfect rest after flowering. At least, I find that the bloom is made abortive by too much heat. In the cool house bulbs started in the early fall form thick undulated dark green leaves. The flower-scape is smooth, spotted with brown, and about a foot high, and is furnished with numerous flowers in a rounded raceme. Individually these are rosy pink and spotted, and about an inch long, and make the plant, which is not a showy one, interesting in a collection. The bulbs are increased by offsets, or if the leaves are stripped and inserted in earth they are said to produce bulbs at the base.

Saxifraga cuscutæformis.—The Dodder Saxifrage is an interesting Japanese species, but owing to its peculiar cultural wants is not often seen in gardens. In habit it seems allied somewhat to S. sarmentosa, but the runners are fine and Dodder-like, whence the name. The plant is low-growing, with ovate leaves, which are beautifully reticulated with white. In the open it flowers in early summer, with abundant but small white flowers. It is not at all hardy, and its principal value is found as an ornament to the cool house, where, if kept free from too much moisture, it grows freely, and shows finer markings than when grown in the border. Outside, during mild weather, it flourishes in the raised border, pushing stolons underground to throw up leaves in unexpected places, but let dry hot weather come the plant quietly disappears; not to be lost, however, for it forms small corms, which are ready to revive under favorable conditions. A plant of this character is apt to exhaust the patience of all but those fond of peculiarly dainty subjects.

Saxifraga Camposii, or S. Wallacei of gardens, is a striking contrast to the above-named variety, and is probably one of the best of the smaller Saxifrages. It is hardy if protected from excessive moisture, and is also useful in the cold house. In such a house the flowers are just opening. These are white, not quite an inch in diameter, and very freely produced on stems three to six inches long. The foliage is flabellate, deeply cleft and toothed.

Elizabeth, N. J. *J. N. G.*

The Forest.

Forestry for the Farmer.

A FEW weeks ago Mr. Gifford Pinchot read a paper on the above subject before the "New York Farmers," and we give below an abstract of it.

The term forestry has come to be associated in the United States very largely with the climatic influence of forests, and the much more important matter of forest-management has been almost wholly overlooked. This is unfortunate. Forest-management we can speak of in definite terms, but our knowledge of the influence of forests on climate is vague and incomplete. Moreover, much that has been said about it is palpable exaggeration. The whole question lacks the immediate interest to make it thoroughly practical. It cannot be expected that the average farmer will stint himself for firewood or refrain from increasing his winter supplies because of the climatic influence of the trees in his wood-lot. The climate

of the future stands small chance with him against the bitter climate of to-day. If this is all that forestry means to the farmer, it may as well stand aside. Tree-planting, except for ornament and protection against sun and wind, is likewise of little interest to him at present. Hitherto the men who have planted trees for profit have been those who could afford to lose their investment. The value of their most useful example will be better appreciated hereafter, but for the present it has little interest to the farmer whose small capital must be made to bring him immediate return. Planting is too costly in most cases, and the returns too distant and uncertain for the man of small means.

But if forestry can help the farmer to grow more railroad-ties and more cord-wood on his wood-lot, if it will increase instead of cutting down the return from the poorer land on his farm, it may be worth his attention. From its very nature this is just what forestry will do. Trees, which are a crop just as much as corn or wheat, will yield an abundant harvest just in proportion to the intelligent care they receive. And the care which woodlands of this kind need is neither minute nor costly. It is all given with the axe, and its quality depends mainly on the choice of the trees which are to fall. It is a difficult matter to formulate general rules for the care of a crop which may contain twenty or thirty different kinds of trees, each with its own requirements as to soil, moisture, light and shade. We are even ignorant, in very many cases, of just what these requirements are. There are certain fundamental principles, however, which the farmer ought to know, which he can easily apply, and which will improve his wood-lot if he does so. He should know, for instance, that the layer of vegetable mold which accumulates under a crop of trees is of the greatest importance to the rapid and healthy growth of his timber. He should know that this layer disappears on exposure to the sun and wind, and that consequently it is a good practice to cut clean only on rich land. In general it is better to take a tree here and there as it becomes ripe, or as it crowds too closely on more valuable specimens. He should apply this principle to the borders of his lot, and leave a dense fringe of low-branching trees and bushes along the edge of the cleared land.

There is a way of cutting over sprout-lands which will give the best results. The important points are to cut near the ground and not to tear the bark loose from the stump. There is a time for cutting which is better than others. There are ways of favoring the better kinds of trees so as to increase their proportion in the mixture. There are ways of cutting off Pine so that Pine will follow it, and not Chestnut or Oak. There are known reasons why certain species follow others after a clear cutting, and why others follow fires. These reasons may vary in each case and for each locality, but there are certain broad facts of the temperament of the different species which always lie at their base.

These are a few of the applications of forestry to the needs of the farmer. I have been indefinite in stating them, and I do not hesitate to admit that we cannot in all cases be precise. Forestry in the United States is so recent that we are far from being thoroughly acquainted with the silvicultural characters of our trees. The general principles of forestry, which are valid all the world over, have come to us from European experience, but the American details remain to be worked out. We know in general that certain trees require more shade in the forest during early youth than others, but we cannot enter fully into scientific detail. We have no systematic knowledge of the requirements and adaptations of our forest-flora in respect to soil, moisture and temperature, as to comparative value for sprout-lands, the age of cutting which will give the best results, and a mass of similar questions. But far more important than all this, the knowledge of how to set about forest-management is wholly lacking among American farmers. Nothing could be more natural, since there exists no good American example.

Forestry, then, offers the farmer certain definite advantages over his present methods of handling his wood-lot, and holds out still further benefits as the reward of wider knowledge. The farmer himself will necessarily have little to do with collecting and discussing the facts which are to yield this wider knowledge, for the reason, among others, that the object of it all does not appeal to him. He must first know what forest-management is and means, and forest-management can never be widely appreciated without concrete examples. Such an example, on a large scale, is about to be supplied by Mr. George W. Vanderbilt, on his estate at Biltmore, North Carolina.

The estate of Biltmore covers some 7,000 acres lying along and between the French Broad and Swannanoa rivers, at an altitude of about 2,000 feet. From the point of view of picturesque beauty, the situation is an exceptionally fine one; but from the forester's point of view, the land is broken, hilly, and, for the most part, not rich. More than half the estate is under forest, chiefly of deciduous trees. In the past the forest has plainly suffered severely from fire, pasturage and indiscriminate cutting. About a thousand acres of the best land, chiefly along the rivers, are devoted to farming. The rest is at present largely waste land.

Here are conditions not unlike those of the average mountain-farm, at least in kind, and the results of this experiment will be of direct interest to farmers throughout a large part of the country. It is proposed to discover whether Biltmore Forest, far from rich as it is either in soil or trees, can be made to yield a uniform annual revenue for an indefinite number of years. It is hoped that this revenue will constitute a fair rate of interest on the value of the property. These things are to be brought about by introducing a rational system of forest-management, which will attempt to harvest each year so much as may be safely cut, but only so much, and under which the productive power of the forest will steadily increase. The forest will be looked upon as a great working capital whose function it is to produce interest, and which does not need to be destroyed in the process. This is, I believe, the only basis upon which forestry will ever become practically accepted among the masses of the people, and for this reason the experiment at Biltmore may perhaps not unfairly be regarded as one of the most important advances that forestry has yet made in this country.

It is too early to speak of the details of the management by means of which it is expected to accomplish these results. The detailed preliminary study of the forest, which must precede any complete plan of action, has not yet been made. It may be said, however, that the management will be based on European models, not adopted, but adapted to American needs. There will be several units of management, and probably as many distinct methods of treatment, both in obedience to the requirements of the forest and because the scope and value of the experiment will be so much the greater. Each unit will be subdivided into blocks or compartments, which will be surveyed and demarcated on the ground. These provisions, as well as many others, will be gathered together in a document called a Working Plan, which will forecast the succession of cuttings for perhaps a hundred years (or whatever the average age of the merchantable log may be found to be), and will prescribe it for five or ten. At the end of this shorter period a complete revision of the working plan will rectify mistakes and readjust the details of the management.

The attempt to do this new thing under the conditions I have described will result, it is hoped, in much knowledge of value to the farmer. First of all, it will draw his attention to the fact that there is such a thing in America as forest-management, and that will be a point gained. Then it will show him, if he chooses to learn, what forest-management means and how it is applied, for it is intended to make a fully illustrated exhibit of the Biltmore working plan at Chicago. But it will not appeal only to the farmer. As the first attempt of its kind in the United States, the experiment at Biltmore will have, it is hoped, a distinct national bearing and importance. It should do much to remove forestry from the anomalous and often illogical position into which the mistaken zeal of some of its friends has forced it, and to ground its roots in the solid earth of business common sense. Not only does it enter a new field, but it asserts a proposition which must ultimately lie at the base of forest-preservation in this country—namely, that it is not necessary to destroy a forest in order to make it pay.

New York. *Gifford Pinchot.*

Correspondence.

A Japanese Flower Party.

To the Editor of GARDEN AND FOREST:

Sir,—In reading Mr. Conder's book on Japanese floral arrangements, recently so instructively reviewed in your columns, I was particularly pleased with the account he gives of the entertainments, at which, for the edification of the guests, the principal feature is the preparation by a member of the party of one of their fanciful bouquets, if indeed it is permissible to apply our occidental term to anything so poetical and conventional, as the graceful but singular grouping of a few twigs and flowers, which the Japanese admire.

This Oriental has brought "good form" down to the nicest point; indeed, to such an extent has he carried it that he is not even permitted to apply the wrong adjective to a flower, so

that one may imagine what dismay such a ceremony would create in the mind of a traveling Englishman accustomed to render his impressions by a few words-of-all-work. To find seasonable and appropriate equivalents applicable to flowers for his easy-going vocabulary of "jolly," "beastly," or "awfully," must tax the Briton's dictionary and his interpreter tremendously; for the Japanese, who admits no flower out of season, regulates his epithets to the occasion with equal precision, and the etiquette of his observations is as carefully regulated by the canon, as that of his performance of all ceremonial obligations.

When the flower party takes place, either by itself alone, or succeeding a banquet, the guests assemble in a room, where, in the alcove with a raised floor, devoted in all Japanese houses to the decorative features of the apartment, there may perhaps be seen a kakemono, or scroll, containing a picture or a poem hanging suspended to the wall. On a low stand there is a dainty tray, upon which are laid a few flowers or branches of Pine, Plum, Bamboo or Cherry; beside them are a pot of water, a pair of scissors, a little saw and a folded napkin, the shape and size and folds of which are also subjected to rules. To these are added the bits of wood or metal by which the stems are held in their proper place, or possibly a bronze crab or two to serve the same purpose in an ornamental way.

After the guests have been received with proper ceremonies and compliments, the host proceeds to roll up his picture or poem, lest the guest should be hampered by having to adapt his arrangement to its subject. Should the guest so desire, he may politely request the master of the house to leave it unrolled, in which case he will compose his monograph on that theme, adapting a Bamboo to a tiger, a Lotus to a stork, or a Chrysanthemum to a flight of butterflies, if that is the proper thing, or some other recondite allusion to the painting, only to be understood of those trained in this polite accomplishment. On whatever basis he proceeds, it is decidedly out of the ruling for the guest to ask for anything that has not been supplied. When the host produces the vase in which the arrangement is to be made, the polite visitor, if it is very beautiful, must protest that he can do nothing worthy of so fair a receptacle. Should the host insist, and his manners, I should think, would compel him always to waive this disclaimer, it is the duty of the performer to make his grouping as simple as possible, in order not to divert attention from the beauty of the flower-jar.

When the guest has completed his arrangement, in which he must be most careful to conform to the myriad rules in which he has been educated, he carefully clears up the litter and deposits it, with the napkin and all the tools except the scissors, upon the tray, which is removed by the host, who assists in gathering the débris. The scissors are delicately left, as a hint that the artist requests that anything redundant in his composition may be removed by the critical examiner, who is requested to improve upon the original idea.

The guests in turn inspect the vase and its contents, with refined and well-fitted compliments for each, the phrases being strictly adapted to the character of the article described—a Pine never being flattered with the same remark made to a Bamboo, a Lotus characterized with a word only legitimately applied to a Plum-branch with its snowy blossoms, nor a Convolvulus disgraced by the florid adjective that properly befits a Chrysanthemum. After the arrangement has been inspected by all the visitors, the artist must take it to pieces, unless especially requested by the giver of the entertainment to permit the honorable performance to remain intact for the glorification of his humble room. This final ceremony being over, the party breaks up, with more gracious civilities of leave-taking.

In inspecting the curious lines and curves of the branches and blossoms that compose a Japanese flower-grouping, which can never be called a nosegay, since fragrance is eschewed in its selection, the uninitiated wonder how the plants can be retained in the attitudes they are made to assume; but this mystery is solved when, in Mr. Conder's book, we find illustrations of the wires, and split Bamboos, and curiously shaped bits of wood, which really serve to keep them in place. When grouped in baskets, according to a usual Japanese custom, the stems are inserted in tubes of Bamboo filled with water, which serve to keep them fresh. There are also very interesting devices here revealed for preserving the freshness of flowers after they are culled, which may well be studied by our own builders of bouquets, to enhance the durability of the more fragile specimens. Indeed, in this pleasing art, as in more important ones, we may well borrow ideas from our oriental contemporaries, who, in delightful sentiment, in poetic restraint, and in the recognition of the value of simplicity, are the masters of us all.

New York. *Sidney Hyde.*

Carnations, New and Old.

To the Editor of Garden and Forest:

Sir,—With the exception of the Chrysanthemum, no florist's flower has been so much improved as the Carnation. Few occupations are more fascinating than raising seedlings of this popular flower, and, in a commercial way, few ventures of the kind are more likely to be profitable. The result is, that a large number of enterprising and intelligent florists are devoting themselves to the cultivation of this flower, and the number is increasing every year. There is much diversity of opinion as to what constitutes an ideal Chrysanthemum-flower, owing to its wide variation in form, but in the case of the Carnation there is a unanimity of opinion which is striking. This ideal flower, for which all are working, should be at least three inches in diameter, full, globular (not flat), with stiff, long stems; petals well fringed, and powerfully fragrant. Grace Wilder, though not a new variety, comes nearest to this ideal, but lacks size, and is not as fragrant as some varieties.

I spent a profitable afternoon recently at Framingham, Massachusetts, among the raisers of Carnations there. Mr. Wight is well known as the raiser of Hector, probably the best of scarlet Carnations grown. It is a robust grower, giving abundance of large flowers of the brightest scarlet on long stems. There is every reason to believe it came as a seedling from Florence (Fisher).

Mr. Fisher has raised several standard varieties, among them being Anna Webb, the foremost crimson until the appearance of Ferdinand Mangold last year. There is very little difference, in general characteristics, between the two; the newer variety, however, possesses a superior constitution, and is not so liable to produce "dead blooms." Mrs. Fisher, the best white up to date, is also conceded to be the best cropper grown, Silver Spray (Simmonds) ranking next. During winter, and especially in dull weather, it has a tendency to become pink-tinged, but the raiser hopes, by a little cross breeding, to remedy this, and, judging from several promising seedlings on trial, he will succeed. I noted in Mr. Nicholson's greenhouse (also of Framingham) two of Mr. Fisher's seedlings, which he has on trial. They belong to the striped section, and should be extensively grown. Paxton is crimson striped on a white ground; it has a handsome and attractive flower, and is one of the heaviest winter-bloomers. Mary Fisher is the brightest terra cotta I have seen. It is scarlet striped on a yellow ground, suffused with violet. Though not a prolific winter-bloomer, it comes in with great force in spring.

The fame of Grace Wilder, which is generally considered the best pink Carnation, has stimulated much competition, and the rivalry has produced several excellent varieties, including Mrs. Mangold (Mangold), salmon-pink; Helen Galvin (Wight), rose; Tidal Wave (Simmonds); Century (C. T. Starr), and Fred Craighton. The most promising rival I have yet seen is a seedling of Mr. Fisher's, which is in every way a counterpart of Mrs. Fisher except in color, and should it prove as good on further trial as it now promises, it will be sure to take a leading place.

At Mr. Nicholson's I saw one of the finest houses of Carnations I have yet seen. The house is one hundred by twenty feet long, with a south-east aspect and three-quarter span. He plants on solid beds in the centre, and uses benches for the sides. His experience is that benches are somewhat better for winter-cropping, and that Anna Webb, with possibly a few other varieties, does better on benches, the reason being, perhaps, that benches are warmer, drier, and admit of frequent watering. On the contrary, Grace Wilder does better on a solid bed, and this is, perhaps, the secret of Tailby's uniform success with this variety. Mr. Nicholson was kind enough to give me a few dates and figures, which alone will give an idea of the abundance of the crop taken from this house. In September, 1890, 1,700 plants were put in, which number was reduced to 1,400 in February, to make room for other plants, but from that date until September, 1891, 120,000 blooms were cut, mostly with long stems. September, 1891, 1,950 plants were put in, and the average up to date has been 10,000 flowers a month.

Wellesley, Mass. *T. D. Hatfield.*

California Horticultural Affairs.

To the Editor of Garden and Forest:

Sir,—This season I observe a great change in the demand for fruit-trees. Last year it was for Peaches and Apricots, but now Almonds and Prunes lead all the rest, and the nurseries cannot begin to supply the orchard-planters. Looking back over the last twenty years, I can remember many flurries in

the tree market. It is "everything by turns, and nothing long," in California. In 1875 my father burned thousands of Apricots because every one wanted Cherries; a few years later people could not be persuaded to plant Cherries, but they had much faith in Bartlett Pears. Almost every year the demand changed. Almonds have been favorites of planters perhaps three or four seasons in the last twenty years. So many were set in unsuitable soil that the years of heavy planting have added little to the profitable orchard area. The Almond will grow in many places where it will not fruit. The reason why Prunes and Almonds lead this season is probably because the product is so easily marketed. Dried fruit, nuts and raisins cost less freight, and freight is one of the most expensive items in California farming.

Some recent observations upon Fig-trees at the four outlying experiment stations of the State University are soon to be published. They show that the University has fifty-one varieties of Figs growing at the stations, and that a great difference exists among the varieties in point of hardiness. A new variety, Dorée Narbus, withstands with ease eighteen degrees of frost, while the well-known California Black, introduced by the Spanish priests more than a century ago, is badly frozen. As a rule, a temperature of twenty degrees is as low as the Fig can safely endure, but there is a greater range of difference among the leading varieties than in the case of most other deciduous fruits. Fig-growers, to be successful, will have to study tables of climate more carefully than heretofore.

Every year new light is thrown upon the climate of California, as signal service observers increase in number. It has been shown that a difference of a few feet in elevation or a few hundred yards in distance makes a vast difference in the climate. The Coast Range, for instance, though usually spoken of as one great mountain-chain, is really composed of many groups, isolated or linked closely together, all with valleys, high plateaus, river systems, cañons through which fogs and winds may sweep, and sheltered places of semi-tropic warmth. In general, it may be truthfully said that the areas of equable climate are limited; much of the foot-hill country is subject to more sudden changes and greater extremes of heat and cold than is generally shown by the misleading mean-temperature tables which sometimes appear in the newspapers. Land-speculators have sold thousands of acres as frostless, on which no horticultural skill could ever grow the orange, lemon and fig with profit or on a commercial scale. Hardly one-third of the trees of more tender species planted by hopeful land-owners are brought to successful bearing; the rest represent the inevitable waste of ignorance and folly. It is beginning to be understood in California that every orchardist should own a maximum and minimum thermometer, and that some one in every town, village and district should keep careful climatic observations.

The prospects for a satisfactory display at the Chicago Fair are still uncertain. There are hundreds of applicants for positions, but few of them seem to be practical outdoor men with comprehensive ideas of securing and displaying an adequate exhibition. In the line of orchard products the state will probably be well represented, particularly in oranges, olives and other semi-tropic fruits. Unless a better spirit of organization is shown, we shall fail in the scientific assembling and classifying of our products.

On the 27th of January the most noticeable flowers blooming in the garden at Niles, Alameda County, were Camellias, Catalonian Jasmine, Magnolia stellata, Japanese Apricot, Paper White and Chinese Narcissus, Tartarian Honeysuckles, Roman Hyacinths and some late Chrysanthemums. Among Roses the Papa Gontier and Safrano are perhaps the most floriferous at this season. Lamarque and Rosamond are also worth especial mention. There are Violets, Heliotropes, yellow Oxalis, and no end of Geraniums. The Daffodils are blooming, and in a week more the Japan Quince will be in flower; so will the double Cherry, Peach and Almond from Japan.

Niles, Cal. *Charles H. Shinn.*

Trees and City Officials.

To the Editor of GARDEN AND FOREST:

Sir,—The ignorance of the average American municipal official as to even the money value of trees was rather strikingly illustrated in Philadelphia some twenty years ago. The Legislature having shown its appreciation of the use of small parks in a city by enacting that one of our few squares should be occupied by the new city hall, and the voters having selected for immolation the largest open space within the old city limits, it became necessary to remove the trees. Bids for the job, which was required to be done in ten days, were advertised for, and a farmer living near the city tried his luck with the other bidders. He at first thought of offering to buy the trees for $100, but experience suggested asking $100 for relieving the city of its superfluous shade. After much entanglement in municipal and political red tape, he obtained the contract, which netted him over $1,000 by the sale of the wood, in addition to the $100 agreed upon. This gift of city property, with a ten per cent. bonus into the bargain, seems odd enough, but as the next bidder asked $4,500 for the same work, the city's loss was at all events not as great as it might have been.

This was, it is true, twenty years ago, but to judge from the annual tree-butchering, miscalled trimming, in our streets, and from the neglected look of the trees in many parts of Fairmount Park, especially the Wissahickon woods, we would seem to have advanced but little as yet in our comprehension of how best to use these gifts of nature either for pleasure or profit.

Mount Airy, Philadelphia. *Charles C. Binney.*

Recent Publications.

Our Trees. By John Robinson. Published by the Essex Institute, Salem, Massachusetts, 1891.

The articles of which this little book mainly consists were published originally in the *Salem Gazette.* Some additional matter has been introduced, and they are now offered in a neatly printed volume of one hundred and twenty pages. The book is strictly local, and is intended as a popular account of all the trees to be found in the streets and gardens of Salem and of the native trees in Essex County, Massachusetts. Salem seems to be a very good field for such a work as this, for ninety per cent. of all the trees native to New England may be found within the city's limits. The sketch is not confined, however, to native trees alone, for all the more important introduced species that are used in ornamental planting are named and described. The trees are taken up in botanical order and introduced in family groups, and the reader is directed to different parts of the city, or its immediate neighborhood, where examples of each species may be found and observed by any one who may care to do so. We do not remember any other guide-book of this kind, and its value is apparent when we consider that persons with some botanical knowledge, and familiar even with the rarer wild flowers, have often only a slight acquaintance with our trees—that is, they do not know them well enough to distinguish the different Oaks or the different Pines from each other, or to separate the Birches and Hornbeams, or to tell which cultivated trees are imported and which are native. If the young people of Salem, and the older ones for that matter, would take this book for a guide and study the various trees which are pointed out throughout the year, they would become pretty familiar with a great number of species, and they would acquire habits of observation which are a valuable part of mental training. The book contains many historical facts of local interest, besides the descriptions of the trees, and, altogether, the city of Salem is to be congratulated upon the possession of such a manual. It would be a benefaction to many other towns if so competent an observer as Mr. Robinson should give similar accounts of their trees, and if such treasuries of information were common they would help to remove the reproach that there are few American people who know even the names of the trees that grow in the streets through which they walk every day.

Notes.

The sixth annual Orchid show, under the direction of Messrs. Siebrecht & Wadley, will open on Wednesday, March 2d, at the Eden Musée, in this city.

One of the English papers states that some old bulbs of Cyclamen Persicum, kept in a cold Peach-house, were subjected to such a low temperature not long ago that the soil in which the bulbs were growing was frozen quite hard for several nights; and yet this did not seem to injure the plants appreciably.

Miss Mary E. Banning has presented to the State Museum of Natural History at Albany a list of the fleshy fungi of Maryland, which describes 179 species, fourteen of which are stated to be new. The manuscript, accompanied by 175 colored plates, has been bound in a large volume, and will doubtless be of much service to botanists.

At the Experiment Station at Kingston, Rhode Island, where there has been some study made of the disease known as the

Scab of the Potato, it has been found that spraying the seed potatoes, and the soil about them after they are in the furrows, with the Bordeaux mixture checks the development of the disease.

The Peruvian Trumpet Flower, a name which has been applied to Brugmansia suaveolens, will not endure frost, but *Meehans' Monthly* invites attention to the fact that it will stand very rough treatment, and this makes it a favorite everywhere for summer decoration. The plant can be taken up in the autumn and preserved in the cellar. The numerous large white trumpet-shaped flowers make it very attractive outside of the particular fragrance which is one of its characteristics.

Certain Japanese writers declare that in placing a floral design in a room care should be taken to contrast its style with that of the adjoining garden, an idea which seems fanciful to us, but is quite reasonable in Japan, where, during most of the year, the paper sides of the house are thrown wide open toward the garden. If the garden, say these writers, consists of an arrangement of lakes and hills, the floral group in the room is best when it has a moorland character; but if the garden be flat and waterless, then mountain-trees and water-plants may be used in the chamber.

Among the foreign plants which have become very troublesome in the Australasian islands the Sweet-brier holds a prominent place. "Introduced as a hedge-plant," says Professor George L. Goodale, "it has run over certain lands like a weed, and disputes every acre of some arable plats. From the facility with which it is propagated, it is almost ineradicable. There is something astonishing in the manner in which it gains and holds the ground." Gorse, Brambles and Thistles also prove much more difficult to eradicate in the southern hemisphere than in the northern, where they originated.

The Colorado Forestry Association has memorialized the President in behalf of a new forest-reservation, the most important one yet asked for, and including the crest of the Rocky Mountains. This range crosses the entire state, and its high interior region contains one hundred and forty peaks exceeding 11,000 feet in height. Vast areas of timber have already been desolated, and yet this is one of the chief distributing centres of the continental water-system containing the sources of the North Platte, the South Platte, the Arkansas, the Rio Grande, the Dolores, the Gunnison, the Grand, the White, the Yampa, streams which are not only important to Colorado, but to the neighboring states and territories. The petition designates for the proposed forest-reserve all public lands along the crest of the mountain-ranges and spurs of the state, and upon each side thereof for a distance of six miles, more or less, according to the width of the timber-belts in different localities.

At the late meeting of the Carnation Society Mr. Lonsdale exhibited some buds of Carnations with specimens of a kind of worm which had worked upon them before the flowers were expanded. In some cases the base of the calyx was eaten through. In other places the petals had been eaten where they had commenced to unfold. In most cases the objective point seemed to be the nectar at the base of the flower, although the petals also seem to have been devoured. Professor Riley identified the marauders as variegated cut worms (Agrotis saucia), and he suggested that they might have been brought into the greenhouse with the earth from some sod-land. He advised the spraying of the plants with Paris green at the rate of one-quarter of a pound to fifty gallons of water, and a thorough wetting of the soil with dilute kerosene-soap emulsion. According to a report in the *American Florist* the remedy was tested at once, and seems to have been effective.

The plant known variously as the Husk Tomato, the Strawberry Tomato, the Ground Cherry and the Dwarf Cape Gooseberry is a species of Physalis (P. pubescens), which has been cultivated for years and is well worth growing in the home garden. Professor Bailey has been making some experiments with this and other species of Physalis, of which he gives an account in a late bulletin. He has tested seven species, but only three of them have been cultivated as fruit-bearing plants. The chief objection to the one named above is its prostrate habit, which causes it to spread over too much ground. Professor Bailey has been unable to hybridize it with others. The species P. Peruviana, or the true Cape Gooseberry, is too late for our climate. It has been in cultivation for two centuries, and is a valuable food-plant in the Cape of Good Hope and New South Wales, where it is eaten in a variety of ways. The Pepper-leaved Physalis (P. capsicifolia), erroneously called P. edulis, is unfit for general cultivation for fruit, although it is an interesting plant for the botanical student.

A recent bulletin from the Mississippi Experiment Station gives an account of the southern Tomato-blight, which was studied there a year ago by Dr. Halstead, and which had become so destructive as to cause alarm among the growers of that region. The blight is due to a bacterial germ. Plants first wilt, then lose their color and die. This blight seems to be identical with a bacterial disease of the Potato, and it can be communicated from one kind of plant to the other. The same seems to be true of a blight of Melons and other cucurbitaceous plants which prevails in the same region. If this is true, it is plain that the soil may become contaminated with bacteria from any one of these three crops, so as to make it unfit for either of the other two. The blight can be more readily disseminated by the Potato, since it is propagated by tubers, which may carry the germs. All the diseased plants and litter should be burned at harvest-time. Repetitions of either of the three crops on the same field should be avoided, and spraying with the Bordeaux mixture is recommended where fear of the blight is entertained. This treatment has proved efficacious in the case of the Potato.

A few months ago we quoted from the *Bulletin of the Torrey Botanical Club* an account of a Linden which had taken root in the decomposed wood of its own trunk. Mr. G. B. Sudworth, of the Forestry Division, of the Department of Agriculture, now reports in the same journal that he has observed a similar phenomenon in a small White Mulberry which stands in the grounds of the Department. The tree, he says, has been more seriously injured than was described to be the case with the Linden, "a considerable portion of its trunk being destroyed by decay. The adventitious roots spring from the free border of a longitudinal crack where the trunk forks, the edges of the wound having been 'healed' for some time, while the subsequent decomposition of the exposed inner layers of wood formed a quantity of mold, which, lying in contact with the healed borders, seems to have induced the growth of adventitious roots from one side into the decayed mass. In considering the precise conditions under which this apparently peculiar growth is produced," adds Mr. Sudworth, "as well as the fact that, as far as observed, the adventitious roots proceed only from vigorous, newly formed wood, perhaps these cases may not be more phenomenal than the production of roots from a cutting or from a layered branch, where new wood is subjected to the same conditions, and therefore seem to be quite analogous to the case in which the Linden and Mulberry produced roots, if not an expression of the same law. The apparent incongruity exhibited by a plant deriving, as it seems, nourishment from its own body appears more striking at first thought than if we consider that the lignified part of any living trunk, if reduced by decay, is as fittingly a plant-food as that which may be appropriated by the same individual from its own accumulation of decayed leaves, provided, of course, the necessary moisture is present in the humus."

Catalogues Received.

C. E. Allen, Brattleboro, Vt.; Seed and Plant Guide.—George B. Arnold, Benton Centre, Yates Co., N. Y.; Price List of Fruit and Ornamental Trees, Small Fruits and Shrubs.—C. S. Curtice Co., Portland, N. Y.; Grape Vines and Small Fruit Plants.—J. A. Everitt, Indianapolis, Ind.; Farm and Garden Tools for Cultivation by Hand Power.—D. M. Ferry & Co., Detroit, Mich.; Flower, Vegetable, Grain and Grass Seeds, Forest Tree and Hedge Seeds.—A. H. Griesa, Lawrence, Kansas; Wholesale List of Fruit and Ornamental Trees.—Peter Henderson & Co., 35 and 37 Cortlandt Street, New York; Water Lilies and Aquatics.—Herbert A. Jackson, Successor to Thos. Jackson, Portland, Me.; Wholesale Catalogue of Deciduous, Evergreen and Fruit Trees, Small Fruits, Vines, Shrubs and Tree Seed.—McMath Bros., Onley, Va.; Price List of Fruit, Shade and Ornamental Trees, Shrubs, Small Fruits, Descriptive Price List of Strawberry and Vegetable Plants.—H. Meyer, late Woolson & Co., Passaic, N. J.; Hardy Perennial Plants, Bulbs, Ferns and Climbers.—Munroe, De Forest & Co., Successors to Munroe, Judson & Stroup, Oswego, N. Y.; Canada Hard Wood Unleached Ashes.—Pitcher & Manda, United States Nurseries, Short Hills, N. J.; Catalogue of New and Rare Seeds, Plants and Bulbs, Beautifully Illustrated. Collections of Choice Flower and Select Vegetable Seeds.—George Richardson, Lordstown, Trumbull Co., Ohio; Rare Water Lilies.—Schlegel & Fottler, 26 South Market Street, Boston, Mass.; Vegetable, Grass and Flower Seeds, Hardy Perennial Plants, Large and Small Fruits, Shade Trees.—Shady Hill Nursery Co., Cambridge, Mass.; Trees, Shrubs, Vines and Herbaceous Perennials.—J. C. Vaughan, 88 State Street, Chicago, Ill.; Garden Seeds and Plants, Tree Seeds.—Webber & Don, Successors to A. D. Cowan & Co., 114 Chambers Street, New York; Flower Seeds, Specialties in Vegetable Seeds and Bulbs.